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April 22, 2005

Mr. Dale Radford, PE
County of Sonoma Department of Health Services, Environmental Health Division
3273 Airway Drive, Suite D
Santa Rosa, CA 95403

RE: **Quarterly Summary and Monitoring Report – First Quarter 2005**
SECOR Project No.: 77CP.60009.01.2810

Dear Mr. Radford:

On behalf of ConocoPhillips, SECOR International Incorporated (SECOR) is submitting the quarterly summary report (QSR) for the location listed below.

Service Station

Circle K Store No. 5426

Location

8510 Gravenstein Highway
Cotati, California

Sincerely,
SECOR International Incorporated

Thomas M. Potter
Staff Scientist

Attachment 1 - Quarterly Monitoring Report January through March 2005 (TRC, 2005)

cc: Mr. Thomas Kosel, ConocoPhillips

**QUARTERLY SUMMARY REPORT
First Quarter 2005**

Circle K Store No. 5426
8510 Gravenstein Highway
Cotati, California

City/County ID #: Cotati

County: Sonoma

PREVIOUS ASSESSMENT

On October 11, 1993, Randall and Sons Construction (R&S) removed five steel underground storage tanks (USTs) from the Site. Total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd) as well as benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in confirmatory soil samples collected from the side-walls of the UST excavation. R&S subsequently over-excavated approximately 400 cubic yards (cy) of hydrocarbon-impacted soil. Confirmatory soil samples collected from the side-walls of the over-excavation area indicated residual hydrocarbon impact remained in the northwestern portion of the excavation.

On October 12, 1994, R&S performed additional over-excavation of approximately 200 cy of soil from the northwestern portion of the initial excavation. TPHd was detected at 65 parts per million (ppm) in a confirmatory soil sample collected from the newly exposed side-wall in the northwestern portion of the over-excavation. No other petroleum hydrocarbons were detected in soil samples collected during this phase of excavation.

A total of five groundwater monitoring wells (MW-2 and MW-6 through MW-9) and one UST cavity observation well (OW), were installed subsequent to over-excavation activities. Groundwater monitoring has been on going since January 1996. Historical groundwater analytical results indicate the presence of TPHg, TPHd, BTEX, and methyl tertiary butyl ether (MtBE) in groundwater beneath the Site, particularly in the northwestern (downgradient) portion of the Site.

In December 1999, SECOR submitted a Remedial Alternative Feasibility Study (FS) to the Sonoma County Department of Health Services (SCDHS). After a review of five remedial alternatives, the FS recommended chemical oxidation as a technically feasible, cost-effective remedial technology for the Site.

In October 2000, SECOR submitted the results of a well survey conducted within a 1,900-foot radius of the Site as requested by the SCDHS. Thirteen wells (of which a total of eleven are used for domestic and/or irrigation water supply purposes) were located within the 1,900-foot search radius around the Site. The Site was found to fulfill the State Water Resources Control Board (SWRCB) guidelines for a Priority Class A

Site, due to the presence of MtBE in excess of 10,000 parts per billion (ppb) in groundwater, and a water supply well within 1,900 feet of the Site.

During July, 2001 SECOR supervised drilling of eight continuous-core soil borings (GP-1 through GP-6 and GP-8 and GP-9). Five borings were advanced to approximately 21 feet bgs, and three borings were advanced to 46 feet bgs. Select soil samples, one grab groundwater sample per shallow boring, and two grab groundwater samples per deeper boring were analyzed for TPHg, BTEX and fuel oxygenates. Soil samples contained up to 1,300 mg/kg TPHg, 1.6 mg/kg benzene, 5.3 mg/kg ethylbenzene, and 57 mg/kg xylenes. MtBE was not detected in soil samples. Grab groundwater samples contained benzene to 0.087 milligrams per liter (mg/L), xylenes to 0.086 mg/L, and MtBE to 14 mg/L. Other analytes were not detected.

During May, 2002, SECOR supervised the installation of one soil boring, which was subsequently converted to monitor well MW-10. The MW-10 boring was advanced to 30 feet bgs, and subsurface soil samples were collected every five feet. Select soil samples were analyzed for TPHg, BTEX, and fuel oxygenates. The maximum reported concentrations in soil samples were 3.1 mg/kg TPHg, 0.0081 mg/kg ethylbenzene, 0.0091 mg/kg xylenes, and 0.033 mg/kg MtBE (via Method 8020M). A post-development groundwater sample collected from MW-10 contained 230 µg/L ethylbenzene, 180 µg/L xylenes, and 5,000 µg/L MtBE. After MW-10 was installed, a pump test was conducted using MW-10 as the pumping well and MW-2, MW-7, MW-8, MW-9, and OW as observations wells. Estimated aquifer parameters for pumping well MW-10 were as follows:

- Transmissivity: 74.4 ft²/day
- Conductivity: 3.9 ft/day
- Zone of influence: 161.7 feet

During May, 2002, SECOR conducted a dual phase extraction (DPE) pilot test using well MW-10. DPE was performed using a 20-horsepower liquid ring vacuum pump connected to a H2 Oil Recovery Systems, Inc. thermal oxidizer unit. The pilot test time was approximately 33 hours. During the DPE test approximately 24 pound of TPHg and 0.07 pounds of MtBE were extracted. The estimated radius of influence for MW-10 was 26 feet.

SENSITIVE RECEPTORS

SECOR conducted a survey of all wells within a 1,900-foot radius of the subject site. Well survey information was obtained from Sonoma County. Based on data provided by Sonoma County there are a total of 17 wells within the 1,900-foot radius. Thirteen are domestic wells, one is an irrigation wells, one is an oil test well and two are of unknown use.

MONITORING AND SAMPLING

The Site has monitored and sampled since 4th quarter 1991. Quarterly monitoring and sampling has been performed from 1st quarter 1997 to present. Currently six wells are

monitored quarterly (MW-2, MW-6 through MW-9, and OW). Samples are analyzed for TPHg, BTEX, and MtBE.

REMEDIATION STATUS

During 1993 and 1994, approximately 600 cubic yards of contaminated soil was excavated as part of UST removal. As an interim remedial measure, weekly batch extraction has been conducted at the Site since September, 2003. Currently, groundwater is extracted from well OW on a weekly basis and transported to ConocoPhillip's Rodeo Facility under a bill of lading, where it is recycled. During the first quarter of 2005, approximately 53,500 gallons of contaminated groundwater had been extracted from OW.

CHARACTERIZATION STATUS

Contamination in soil has been adequately assessed. Approximately 600 cubic yards of contaminated soil was excavated during tank removal in 1993 and 1994. Soil analytical data indicates that residual contamination is localized near the water table (smear zone) in the northern part of the site. Contamination in groundwater is not fully delineated, and the Circle K plume is likely commingled with the contamination from the ARCO station located north of Gravenstein Highway. The highest concentrations have consistently been reported in MW-7, located near the northern boundary of the site.

RECENT SUBMITTALS/CORRESPONDENCE

Submitted – Corrective Action Plan dated March 8, 2005 to the County of Sonoma Department of Health Services, Environmental Health Division

DISCUSSION

During the first quarter 2005, depth to groundwater ranged between 8.12 and 9.99 feet bgs, which was in range of historical levels. Historical groundwater depths have been reported between 5.50 feet and 12.96 feet bgs. The direction of groundwater flow is toward the northeast.

Evaluation of dissolved concentrations through the first quarter 2005 indicates that the highest concentrations of residual petroleum hydrocarbons and MtBE continue to be detected in on-site wells MW-2, MW-7, and OW, and off-site well MW-9. TPPH was reported at its highest in well MW-7 this quarter at 4700 $\mu\text{g/L}$. The dissolved plume remains undefined for TPPH and defined with MtBE by the existing monitoring well network.

The implementation of the CAP submitted March 8, 2005 will address the current plume with a mobile dual phase extraction system by extracting water from selected wells thereby creating a cone of depression pulling with it dissolved phase hydrocarbons with an anticipated result of shrinking the plumes. Along with the water treatment, vapor extraction will address the source contamination on site.

THIS QUARTER ACTIVITIES (First Quarter 2005)

1. TRC performed groundwater monitoring and sampling event.
2. Extracted 53,500 gallons from well OW during the quarter.
3. Prepared and Submitted a Corrective Action Plan (CAP) for DPE dated March 8, 2005.

NEXT QUARTER ACTIVITIES (First Quarter 2005)

1. TRC to perform groundwater monitoring and sampling event.
2. Continue batch extraction from well OW.
3. Implement March 8, 2005 CAP pending agency approval.

**ATTACHMENT 1
QUARTERLY MONITORING REPORT
JANUARY THROUGH MARCH 2005 (TRC)**

Circle K Store No. 5426
8510 Gravenstein Highway
Cotati, California

SEE TRC

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